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Computer architecture @ Google

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Abstract

Google is a software company: "organize the world's information and make it universally accessible and useful". However, all those services require massive amounts of hardware. Optimizing that hardware to better serve the needs of the software is the task of the Google Platforms team. The hardware requirements grow with the number of services, with the complexity of the services, and with the number of users, imposing severe requirements on the performance and cost of the Google fleet.

In this talk I will discuss some of the challenges that Google faces in developing its server fleet, and will focus on one particular workload: video transcoding at YouTube.



Short bio

I am currently Platforms Performance Engineer at Google. Before that I was Principal Research Scientist at NVIDIA in the Architecture group, associate professor at UPC, and Research Manager at the Barcelona Supercomputing Center.

I have a BsC ('95), MsC ('97) and PhD ('02, awarded the UPC extraordinary award to the best PhD in computer science) in Computer Science from the Universitat Politècnica de Catalunya, Barcelona, Spain. I have been a summer student intern with Compaq's Western Research Laboratory in Palo Alto, California for two consecutive years ('99-'00), and with Intel's Microprocessor Research Laboratory in Santa Clara ('01).

I have co-authored more than 150 papers in international refereed conferences and journals, and supervised 10 PhD students. My research interests include energy efficient supercomputing, heterogeneous multicore architectures, hardware support for programming models, and simulation techniques.